

REMARKS

Claims 5, 9, 10, 12-14, 30, 33, and 44-46 are pending in the present application. Claims 6-8, 11, and 47-52 have been cancelled. Claims 5, 9, 12, 30, 33, 45 and 46 have been amended. No new matter has been added. The claims have been rejected for lack of enablement, lack of written description, indefiniteness, and anticipation.

CLAIM REJECTIONS

Rejections under U.S.C. § 112, first paragraph

Written Description Rejection

Claims 47-52 were rejected under 35 U.S.C. § 112, first paragraph for lack of written description. The Examiner alleges that the specification contains inadequate written description of nucleic acid molecules comprising nucleotides 382-631 or 970-1525 of SEQ ID NO: 7. Applicants have cancelled claims 47-52. Thus this rejection is moot and should be withdrawn.

Claims 6-8 were rejected under 35 U.S.C. § 112, first paragraph for lack of written description. The Examiner alleges that the specification contains inadequate written description of nucleic acids encoding any and all variants of the polypeptide set forth as SEQ ID NO: 8. Applicants have cancelled claims 6-8. Thus this rejection is moot and should be withdrawn.

Claims 30, 33, 45, 46, 48, 49, 51, and 52 were rejected under 35 U.S.C. § 112, first paragraph for lack of written description, the Examiner stating that the claims are limited to a pharmaceutical composition and, thus, the claims encompass a composition to be used in the treatment of disease. Applicants have cancelled claims 48, 49, 51, and 52. Thus this rejection is moot as it applies to these claims. In regard to claims 30, 33, 45, and 46, Applicants have amended these claims herein to delete the term “pharmaceutical.” Thus, this rejection has been overcome and should be withdrawn.

Enablement Rejection

Claims 5, 9-14, 30 and 33 were rejected under 35 U.S.C. § 112, first paragraph because the Examiner asserts that the specification, while enabled for a nucleic acid molecule comprising a nucleic acid sequence encoding the polypeptide sequence of SEQ ID NO: 8, does not reasonably provide enablement for any and all nucleic acid molecules encoding polypeptides

comprising variants or fragments of the amino acid sequence set forth as SEQ ID NO: 8. Claim 11 has been cancelled herein. This rejection is, therefore, moot in regard to this claim. In regard to claims 5, 9-10, 12-14, 30 and 33, Applicants note that claim 5 has been amended herein to require a nucleic acid molecule that comprises a nucleic acid sequence encoding a polypeptide that comprises the amino acid sequence of SEQ ID NO: 8, which the Examiner has admitted to be enabled. (See Office Action, page 5). Also, claim 9 has been amended herein to require a nucleic acid molecule that comprises the nucleotide sequence of SEQ ID NO: 7. Applicants have deleted references to variants of the polypeptide sequence of SEQ ID NO: 8. Therefore, Applicants believe that claims 5, 9-10, 12-14, 30 and 33 are fully enabled. Thus this rejection has been overcome and should be withdrawn.

Rejections under U.S.C. § 112, second paragraph

Claims 5-14, 30 and 33 have been rejected under 35 U.S.C. § 112, second paragraph as being indefinite. Applicants have cancelled claim 11. Thus this rejection is moot as it applies to this claim. Applicants traverse the rejection to the extent it applies to the remaining claims. Examiner alleges that the specification does not set forth metes and bounds for a “mature form” of SEQ ID NO: 8 or the NOV4 polypeptide. Applicants have amended claim 5 to delete section (a), which recited the term “mature form,” and therefore submit that this rejection is now moot and should be withdrawn.

The Examiner also alleges that claims 5, 6-14, 30 and 33 are indefinite in being directed to “a nucleic acid molecule encoding a polypeptide wherein that nucleic acid molecule is the complement of a nucleic acid molecule encoding a claimed polypeptide.” (See Office Action, page 15). Claims, 6-8 and 11 have been cancelled herein. This rejection is, therefore, moot in regard to these claims. In regard to the remaining claims, Applicants note that claim 5 has been amended herein to delete reference to nucleic acid complements. Also, Applicants assert that claim 10, which recites “[t]he nucleic acid molecule of claim 5, wherein said nucleic acid molecule hybridizes under stringent conditions to the nucleotide sequence of SEQ ID NO: 7 or a complement of said nucleotide sequence,” is definite. One of ordinary skill in the art would recognize that a nucleic acid molecule that hybridizes under stringent conditions to the complement of the nucleotide sequence of SEQ ID NO: 7 would encode a useful protein.

The Examiner also alleges that claims 11-14 are indefinite because it is not possible to ascertain what is being claimed in claim 11. Claim 11 has been cancelled herein, and claims 12-14 have been amended herein to depend, directly or indirectly, on claim 5 instead of claim 11. This rejection should be withdrawn.

Rejections under U.S.C. § 102

Claims 5, 9, 10, 44, 47 and 50 were rejected under 35 U.S.C. § 102(b), as being anticipated by NCBI Online Accession No. AC008687 ("AC008687"). Specifically, the Examiner states that the AC008687 publication discloses a nucleic acid sequence that is 100% identical to SEQ ID NO: 7 over its entire length. Applicants have cancelled claims 47 and 50 and traverse the rejection as it applies to claims 5, 9, 10 and 44.

Applicants assert that AC008687 does not disclose a nucleic acid sequence that is 100% identical to SEQ ID NO 7 over the length of SEQ ID NO: 7. Instead, AC008687 discloses a nucleic acid that is 100% identical to SEQ ID NO: 7 from nucleotides 904 to 1692 of SEQ ID NO:7, which corresponds to nucleotides 82187 to 81399 of AC008687. The alignment of SEQ ID NO: 7 and AC008687 over the length of the SEQ ID NO:7 nucleic acid is provided as a CLUSTALW alignment in the attached Appendix A, and demonstrates that substantial regions of SEQ ID NO:7 are non-homologous to the nucleic acid sequence disclosed in AC008687. As discussed *supra*, Applicants have amended claims 5 and 9 herein to delete references to fragments or variants of the nucleic acid sequence of SEQ ID NO: 7. Claim 9, as amended herein, is directed to a nucleic acid molecule that *comprises* the nucleotide sequence of SEQ ID NO: 7. Therefore, Applicants submit that because AC008687 does not teach all the limitations of the claimed invention, it does not anticipate pending claims 5, 9, 10 and 44. Thus, this rejection should be withdrawn.

Claims 5, 7, and 11-14 were rejected under 35 U.S.C. § 102(b), as being anticipated by Kalman *et al.* (1998), J. Biol. Chem. 273:5851-57 ("Kalman"). Specifically, the Examiner states that Kalman discloses a nucleic acid sequence encoding a variant of SEQ ID NO: 8 having 85% identity with the sequence set forth as SEQ ID NO: 8 and fragments thereof according to claims 5 and 11. Applicants have cancelled claims 7 and 11, and traverse the rejection as it applies to claims 5 and 12-14.

As discussed *supra*, Applicants have amended claims 5 and 9 herein to delete references to fragments or variants of the nucleic acid sequence of SEQ ID NO: 7. Claim 5, as amended herein, is directed to an isolated nucleic acid molecule that comprises a nucleic acid sequence encoding a polypeptide of the amino acid sequence of SEQ ID NO: 8. Claim 9, as amended herein, is directed to a nucleic acid molecule that comprises the nucleotide sequence of SEQ ID NO: 7. The sequence alignment provided by the Examiner indicates that the polypeptide encoded by SEQ ID NO: 7 is 84.77% identical to the polypeptide disclosed by Kalman. Therefore, Applicants submit that because Kalman does not teach all the limitations of the claimed invention, it does not anticipate pending claims 5 and 12-14. Thus, this rejection should be withdrawn.

CONCLUSION

On the basis of the foregoing amendments, Applicants respectfully submit that the pending claims are in condition for allowance. If there are any questions regarding these amendments and remarks, the Examiner is encouraged to contact the undersigned at the telephone number provided below.

Respectfully submitted,



Ivor R. Elrifi, Reg. No. 39,529
Attorney for Applicant
c/o Mintz, Levin
One Financial Center
Boston, MA 02111
Telephone: (617) 542 6000
Fax: (617) 542 2241

Dated: July 3, 2003

APPENDIX A

ac008687 AGGAACCTTAAATACACAGCTGACGGGGGCAAGGAGAGCTGAAAACT 50
SEQ ID NO:7 -----GAA GCCTGATTCTGACGAAACACACCCG---CACGAAACA 38

ac008687 CCGGAGTCTGTGCGGCTGGGCGGTAAAAGCCAGGCCCTGAATAACTCCAG 100
SEQ ID NO:7 TCGAGAGACCCAGGACAGGATCCCGCGGCAGAAAGACGGAGG--AA- 85

ac008687 CTGAGGGTGCTGGACCCGAGGGGCGACAGTAGGAGGAATCTATGGAAAG 150
SEQ ID NO:7 --CGGACCCCGGACGGGAAAGGCG-CAG-AGCAGGCGCGGGCGGCGGC 131

ac008687 AAAGCCAGGTTGAGGGGCGAGGAGGCGGCTAGGGCTCGGCTTCGAGA 200
SEQ ID NO:7 GGCGCGGGGCAGG---CAGCGCGGCGTCCGCGCAGAGGGCGGCGGT 178

ac008687 GAAGTCTCTTTTCTTTTATTTCCTGTCAGACAGAGTCTTG-CTCTGTGG 249
SEQ ID NO:7 CGCCCTGTGCGCCCTCCGCCCCGCGCGCTCAGAGTCCCTCCCTCGCG 228

ac008687 CCCAGGCTCGAGTGAATGGCGCTATCTCGGCTCACTCAAGGTCTGCCT 299
SEQ ID NO:7 CCCTAGCGCCCTGGCGGCTATTTACGCGGGGACACGGACACCGGAC 278

ac008687 CCGGGTCAAGCGATTCTCTGCT----TAGCCTCCCAAGTAGGTGG 344
SEQ ID NO:7 AGCGGGCTGGGCGCGGTGCGGGCACACCTCGCTTGGCGGGTGGCGG 328

ac008687 GATTACAGGTG----AGGCCACACGCCCGCTAATTCTGTATTTTA 390
SEQ ID NO:7 GCTCGCGCGCATGGAGCGCGGTGCCCGCGCCCCGTCGGGTGCTG 378

ac008687 GTAGAGATGGGTTTCAACGTGTTGGCCAGGATGCTCTATTTCTTAC 440
SEQ ID NO:7 CGAGCGGCTGGTGTCAACGTG---GCGGGCTGCGCTTCGAGAGCGGG 425

ac008687 CTCTGTATCCGCGCGCTCGGCTTCCCAAAGTGCTGGGATACAGACGTG 490
SEQ ID NO:7 GCGCA---CGGTGGGC--GCTTCCCGG-CACCTCTCTAGGGGACCA 469

ac008687 AGCCACCGCGCCAGCCGCAATTACTCTGGGCTCGGACTCTTGA---GG 537
SEQ ID NO:7 GCGCGCGCGCGCTTCTCGACGACGCGCGCGCGGATTTCTTCTGA 519

ac008687 GGAAGGAAACCTAGGCACAGGTGGTGG--GCGGGGAGGGATGCTC 585
SEQ ID NO:7 CGGGCACCGGCGAGCTTGGCGCGGTCTCTACTACTACAGTCCGCTG 569

ac008687 CCCATCTA-GAAAATCAACATGAGGCGG--GACTTTGAGAGAGAAGAG 632
SEQ ID NO:7 GGCGGCTGCGCGGCGCGGACGTGCGCTCGAGCTCTTCTCTGAAGAG 619

ac008687 GTTGACCCCTAC---TCAAAATAGTTCGACGATCAAGGGGAGGGA 679
SEQ ID NO:7 GTGGCTTCTACGGGCTGGGCGCGCGCCCTGGCACCCCTGCGGAGGA 669

ac008687 CCACGCTT-CCAGCCACGCAACAGGTCAGGCAACCAAGAGTACCGGCC 728
SEQ ID NO:7 CGAGGCTGCGCGGTGCGCGCGGAGC---GCCCGCTGCCCCGCGCGCT 716

ac008687 CAGG--GATGATCCCTGGATCCGCGAGGAAGTCTGGGATAACAGGTC 776
SEQ ID NO:7 TCGCCGCAAGCTGTGCTGCTTTTCGAGTTTCCGAGAGCTCTCAGCC 766

ac008687 ACGGAGCGCTTGGCGGAGCGG--TACTGACCA-----AGCTGTAAGA 819
SEQ ID NO:7 GCGGCGCTGCTCGCGGTAGTCTCGTGTGTCTTCTCGCTCTCCCTCT 816

ac008687 GGAGCTGGGTATTTAATGATGATTAAGGCTGTCCCGTGTCTAGCCCC 869
SEQ ID NO:7 CGTCTTCTGCTTCGAGACGCTGCC--GACTTCCGCGACACC--GCGAC 862

ac008687 AGCTGACCCCTCCCTG---GAGACTTTCCTCCCTGCACTTCCCCGCTCC 915
SEQ ID NO:7 GGCACGGGCTGTGCTGCTGC-GCGCAGCGCGCGCGGTGTCCCCGCTCC 912

ac008687 GCTGAATGGCTCCAGCCAAATGCCCTGGAAATCCACCCCGCTGCCCTTC 965
SEQ ID NO:7 GCTGAATGGCTCCAGCCAAATGCCCTGGAAATCCACCCCGCTGCCCTTC 962

ac008687 ATGACCCGTTCTTCTGTTGGAGACGCTGTGATTTGTTGGTTCTCCTTT 1015
SEQ ID NO:7 ATGACCCGTTCTTCTGTTGGAGACGCTGTGATTTGTTGGTTCTCCTTT 1012

ac008687 GAGCTGCTGGTACGCTCCTGGTCTGTCCAAGCAAGGCTATCTTCTTCA 1065
SEQ ID NO:7 GAGCTGCTGGTACGCTCCTGGTCTGTCCAAGCAAGGCTATCTTCTTCA 1062

ac008687 GAACGTGATGAACCTCATCGATTTGTGGCTATCCTTCCCTACTTTGTGG 1115
SEQ ID NO:7 GAACGTGATGAACCTCATCGATTTGTGGCTATCCTTCCCTACTTTGTGG 1112

ac008687 CACTGGGCAACGAGCTGGCCCGGACGAGGGGTGGGCCAGCAGGCCATC 1165
SEQ ID NO:7 CACTGGGCAACGAGCTGGCCCGGACGAGGGGTGGGCCAGCAGGCCATC 1162

ac008687 TCACTGGCCATCTTGAGAGTCATCCGATTGGTGGCTGTCTTCCGCATCT 1215
SEQ ID NO:7 TCACTGGCCATCTTGAGAGTCATCCGATTGGTGGCTGTCTTCCGCATCT 1212

ac008687 CAAGCTGTCCCGGCACTCAAAGGGCTGCAAAATCTTGGGCCAGACGCTTC 1265
SEQ ID NO:7 CAAGCTGTCCCGGCACTCAAAGGGCTGCAAAATCTTGGGCCAGACGCTTC 1262

ac008687 GGGCTCCATGCGTGAGCTGGGCTCCTCATCTTTTTCCTCTTCATCGGT 1315
SEQ ID NO:7 GGGCTCCATGCGTGAGCTGGGCTCCTCATCTTTTTCCTCTTCATCGGT 1312

ac008687 GTGGTCTCTTTTCCAGCGCGCTCTACTTTGCCGAAGTTGACCGGGTGG 1365

SEQ ID NO:7 GTGGTCCTCTTTTCCAGCGCCGCTACTTTGCCGAAGTTGACCGGGTGGG 1362
 ac008687 CTCCCATTTCACTAGCATCCCTGAGTCCTTCTGGTGGGCGGTAGTCACCA 1415
 SEQ ID NO:7 CTCCCATTTCACTAGCATCCCTGAGTCCTTCTGGTGGGCGGTAGTCACCA 1412
 ac008687 TGA CTACACTTGGCTATGGAGACATGGCACCCGTCACCTGTGGGTGGCAAG 1465
 SEQ ID NO:7 TGA CTACAGTTGGCTATGGAGACATGGCACCCGTCACCTGTGGGTGGCAAG 1462
 ac008687 ATAGTGGGCTCTCTGTGTGCCATTGCCGGCGTGCTGACTATTTCCTGCC 1515
 SEQ ID NO:7 ATAGTGGGCTCTCTGTGTGCCATTGCCGGCGTGCTGACTATTTCCTGCC 1512
 ac008687 AGTGCCCGTCATTGTCTCCAATTTTCAGCTACTTTTATCACCGGGAGACAG 1565
 SEQ ID NO:7 AGTGCCCGTCATTGTCTCCAATTTTCAGCTACTTTTATCACCGGGAGACAG 1562
 ac008687 AGGGCGAAGAGGCTGGGATGTTTCAGCCATGTGGACATGCAGCCTTGTGGC 1615
 SEQ ID NO:7 AGGGCGAAGAGGCTGGGATGTTTCAGCCATGTGGACATGCAGCCTTGTGGC 1612
 ac008687 CCACCTGGAGGGCAAGGCCAATGGGGGGCTGGTGGACGGGGAGGTACCTGA 1665
 SEQ ID NO:7 CCACCTGGAGGGCAAGGCCAATGGGGGGCTGGTGGACGGGGAGGTACCTGA 1662
 ac008687 GCTACCACCTCCACTCTGGGCACCCCCAGGCAACACCTGGTCACCGAAG 1715
 SEQ ID NO:7 GCTACCACCTCCACTCTGGGCACCCCCAGGCAACACCTGGTCACCGAAG 1712
 ac008687 TGTGAGGAACACTTGAGGTCTGCAGGACCTCACAC 1750
 SEQ ID NO:7 TGTGAGGAACAGTTGAGGTCTGCAGGACCTCACAC 1747

TRA 1810447v1